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Exploring Election Prediction Outcomes on Social Media Data using Machine Learning Algorithms

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Abstract

Social media analytics (SMA) is immensely used to investigate public sentiment and provide real-time insights into politics and business strategy. In addition, social media analytics has been employed in predicting election results by leveraging machine learning (ML) models in extensive datasets created from user-generated content on platforms such as Twitter, Facebook, and Instagram. SMA can be highly effective in this domain, yet issues concerning authenticity and reliability persist. These data manipulations are driven by misinformation, influenced by bots, and reflect a limited representation of social media users in the electorate correspondence. This paper

explores how sentiment analysis (SA) and use of ML can enhance election prediction for overcoming the identified issues. This study will evaluate Naive Bayes, random forest, and long short-term memory networks for their effectiveness in predicting election outcomes based on social media SA. Despite the potential for distortion from misinformation, these models demonstrate a prediction accuracy of 94% as shown in case studies. It also addresses how traditional methods of data collection through surveying can enhance SMA, offering a more balanced perspective on public opinion and minimizing biases present in social media data. These findings highlight that SA and ML have the potential to predict election outcomes. However, future research should prioritize the authenticity and diversity of data sources. A reduction in misinformation, achieved without relying on one single platform would lead to improved election predictions. This paper emphasizes the importance of incorporating traditional and digital sources to enhance the reliability of political predictions, complementing the insights gained from SMA. © The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd. 2025.

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